

Ergonomic risk factors of work processes in the semiconductor industry in Peninsular Malaysia

ABSTRACT

A cross-sectional survey of semiconductor factories was conducted to identify the ergonomic risk factors in the work processes, the prevalence of body pain among workers, and the relationship between body pain and work processes. A total of 906 women semiconductor workers took part in the study. In wafer preparation and polishing, a combination of lifting weights and prolonged standing might have led to high pain prevalences in the low back (35.0% wafer preparation, 41.7% wafer polishing) and lower limbs (90.0% wafer preparation, 66.7% wafer polishing). Semiconductor front of line workers, who mostly walked around to operate machines in clean rooms, had the lowest prevalences of body pain. Semiconductor assembly middle of line workers, especially the molding workers, who did frequent lifting, had high pain prevalences in the neck/shoulders (54.8%) and upper back (43.5%). In the semiconductor assembly end of line work section, chip inspection workers who were exposed to prolonged sitting without back support had high prevalences of neck/shoulder (62.2%) and upper back pain (50.0%), while chip testing workers who had to climb steps to load units had a high prevalence of lower limb pain (68.0%). Workers in the assembly of electronic components, carrying out repetitive tasks with hands and fingers, and standing in awkward postures had high pain prevalences in the neck/shoulders (61.5%), arms (38.5%), and hands/wrists (30.8%).

Keyword: Semiconductor industry; Women workers; Ergonomic risk factors